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09/768,921	01/24/2001	Shenghong Wang	US010023	5154

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EXAMINER

SHUTE, DOUGLAS M

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/768,921

Applicant(s)

WANG, SHENGHONG

Examiner

Douglas M. Shute

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/24/01 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-13 are presented for examination.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Figure 3, element 351. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because Figure 3 contains element 310 which is not clearly identified. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities: The specification has several references to "parallel to serial conversion" which should be "serial to parallel conversion" (e.g., page 1, line 17 and page 5, line 4). Appropriate correction throughout is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites a microprocessor "connected to receive said parallel signals over a bus from said parallel to serial converter". It would appear that this should be a "serial to parallel converter". Clarification is required.

8. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "said device" is ambiguous. Clarification is required.

9. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "or driven" is unclear. Clarification is required.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1, 2, 4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art, Applicant's specification pages 1-7 (hereinafter AAPA) in view of Katzy et al. (5,070,967) (hereinafter Katzy).

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12. As per claim 1, as best understood, AAPA shows an apparatus for receiving signals from a control computer (e.g., fig. 1, element 107) and for using such signals to control a lighting device, said apparatus comprising:

a lighting device microprocessor (e.g., figure 1, element 101), connected to receive said signals over a bus (e.g., figure 1, element 103) to interpret said signals as commands, and to control said lighting device in accordance with said commands (e.g., page 1, lines 21-22, "A microprocessor ... bus 102). AAPA does not specifically show a separate parallel to serial (or serial to parallel) converter which provides signals to a lighting device microprocessor. AAPA does show that the microprocessor previously performed various operations such as parallel to serial (or serial to parallel) conversion (e.g., page 2, lines 24-26, "other functions previously ... possibly others."). Katzy shows the well-known equivalence between functions performed by a microprocessor and hardware devices which perform the same function (e.g., col. 3, lines 47-52, "Although, ... microprocessor"). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the parallel to serial (or serial to parallel) conversion function performed by the microprocessor of AAPA could be replaced with an equivalent separate hardware device as per Katzy and transfer

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signals by the well-known use of a bus from the converter to the microprocessor and thereby achieving a well-known system speed increase and resultant reduced load on the microprocessor. Further, AAPA does not explicitly show the lighting device but this is inherent therein.

13. As per claim 2, it is rejected for reasons given for claim 1. Further, AAPA shows that the microprocessor previously also performed the operation of edge detection. (e.g., page 2, lines 24-26, "other functions previously ... possibly others."). Katzy shows the well-known equivalence between functions performed by a microprocessor and hardware devices which perform the same function (e.g., col. 3, lines 47-52, "Although, ... microprocessor"). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the edge detection function performed by the microprocessor of AAPA could be replaced with an equivalent separate hardware device as per Katzy and thereby achieving a well-known overall system speed increase and resultant reduced load on the microprocessor.

14. As per claim 4, AAPA shows an apparatus analogous to a method of receiving and processing lighting control signals, from a central computer (e.g., figure 1, element 107), at a lighting

device, conveying said signals thereafter to a microprocessor (e.g., figure 1, element 101), and controlling said lighting device with said microprocessor. Further, AAPA shows that the microprocessor previously also performed the operation of parallel to serial (and serial to parallel) conversion as well as error detection (e.g., page 2, lines 24-26, "optionally other functions previously ... possibly others."). Katzy shows the well-known equivalence between functions performed by a microprocessor and hardware devices which perform the same function (e.g., col. 3, lines 47-52, "Although, ... microprocessor"). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the parallel to serial (or serial to parallel) conversion and error detection functions performed by the microprocessor of AAPA could be replaced with equivalent separate hardware devices as per Katzy and thereby achieving a well-known overall system speed increase and resultant reduced load on the microprocessor. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made that signals conveyed to the microprocessor would be decoded and lighting control achieved via such decoding as this is well-known microprocessor control operation. Also, AAPA does not explicitly show the lighting device but this is inherent therein.

15. As per claim 7, AAPA shows a control computer (e.g., figure 1, element 107) that controls a lighting hardware device, comprising means for transmitting and receiving serial signals indicative of commands and data to control said lighting device (e.g., figure 1), conveying said signals to a microprocessor for utilization in controlling said lighting device (e.g., figure 1, element 101). Further, AAPA shows that the microprocessor previously also performed the operation of serial to parallel (and parallel to serial) conversion as well as edge detection (e.g., page 2, lines 24-26, "optionally other functions previously ... possibly others."). Katzy shows the well-known equivalence between functions performed by a microprocessor and hardware devices which perform the same function (e.g., col. 3, lines 47-52, "Although, ... microprocessor"). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the serial to parallel (and parallel to serial) conversion and edge detection functions performed by the microprocessor of AAPA could be replaced with equivalent separate hardware devices as per Katzy and thereby achieving a well-known overall system speed increase and resultant reduced load on the microprocessor. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made that signals conveyed to the microprocessor would be decoded and

lighting control achieved via such decoding as this is well-known microprocessor control operation. Also, AAPA does not explicitly show the lighting device but this is inherent therein.

16. Claims 3, 5-6, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art, Applicant's specification pages 1-7 (hereinafter AAPA) in view of Katzy et al. (5,070,967) (hereinafter Katzy) in further view of Roempp (4,887,261) (hereinafter Roempp) and in still further view of Szumila et al. (3,671,865) (hereinafter Szumila).

17. As per claim 3, it is rejected for reasons given above for claim 2. Further, the combination of AAPA and Katzy does not specifically show that the parallel to serial converter could comprise a shift register and a preshift register, and could further comprise control logic for holding data in said preshift register until said data passes error detection testing. However, Roempp shows the well-known equivalence between a shift register and both a serial to parallel and a parallel to serial converter (e.g., claim 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made that a parallel to serial (or serial to parallel) converter of AAPA and

Katzy could be replaced by a shift register of Roempp. Also, the combination of AAPA, Katzy and Roempp does not specifically show control logic for holding data in said preshift register until said data passes error detection testing. Szumila shows holding data in a preshift register until said data passes error detection testing (e.g., col. 3, lines 39-43, "When ... shift register C"). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the shift register of AAPA, Katzy and Roempp could store data until such time as error detection could be performed by the technique of Szumila as this would provide a convenient location for storing data while error processing was being performed on it and that overall system performance would be enhanced via the error detection processing.

18. As per claim 5, it is rejected for reasons as given above for claim 4. Further, it is rejected for reasons similar to those given above for claim 3. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the step of conveying could comprise moving signals from a shift register to a storage register as shown by the transfer of data between shift registers per Szumila (e.g., col. 3, lines 39-43, "When the data ... shift register C") as this would provide a

convenient technique to hold data prior to error detection and subsequent utilization by an addition shift register. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made that delaying placing any further data into the shift register until after said moving could prevent loss of data as this would preclude overwriting existing data prior to its utilization which is a well-known safety precaution.

19. As per claim 6, it is rejected for reasons given above for claim 5. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the step of performing parallel to serial (or serial to parallel) conversion could be accomplished on a different circuit board from said microprocessor since this would provide a well-known assist in reducing noise or other undesired interaction between the two.

20. As per claim 10, it is rejected for reasons similar to those given above for claim 3 where claim 10 is an analogous method to the apparatus of claim 3. Further, the combination of AAPA, Katzy, and Roempp and Szumila does not specifically show transferring a portion of said signal between a preshift register and a shift register following error detection if said portion is error free and repeating this procedure plural times before shifting said signals out of said shift register to a lighting device. However, Szumila shows moving data between shift registers with an intervening error check (e.g., col. 3, lines 39-43, "When the ... shift register C."). It would have been obvious to one of ordinary skill in the art at the time the invention was made that moving a portion of the signal at a time between registers would enhance overall system reliability and speed by checking and possibly detecting an error prior to evaluation of the complete signal.

21. As per claim 11, it is rejected for reasons as given above for claim 10. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made that signals could be shifted out of said shift register in response to commands from a separate set of arbitration control logic since arbitration control logic separate from the microprocessor

function would be one of the several functions previously done by the microprocessor and which could now be done by separate hardware as per the rejection of claim 1.

22. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art, Applicant's specification pages 1-7 (hereinafter AAPA) in view of Katzy et al. (5,070,967) (hereinafter Katzy) in further view of Roempp (4,887,261) (hereinafter Roempp) in still further view of Szumila et al. (3,671,865) (hereinafter Szumila and in still further view of Burkman, Sr. et al. (4,347,499) (hereinafter Burkman).

23. As per claim 12, it is rejected for reasons as given above for claim 11, Further the combination of AAPA, Katzy, Roempp, and Szumila does not specifically show that the arbitration control logic could also control a manual override for controlling said lighting device manually. However, Burkman shows the use of manual overrides in a microprocessor lighting system (e.g., col. 10, lines 10, "interpretation of manual override inputs..."). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the arbitration logic could

control such manual overrides in the system with separate arbitration logic as described above in the rejection of claim 1.

24. As per claim 13, it is rejected for reasons as given above for claim 12. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a signal that is determined to have an error in the preshift register could be retransmitted from said central computer to said preshift register as this represents a well-known request for retransmission technique used in communication error handling.

25. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art, Applicant's specification pages 1-7 (hereinafter AAPA) in view of Katzy et al. (5,070,967) (hereinafter Katzy) and in further view of Burkman, Sr. et al. (4,347,499) (hereinafter Burkman).

26. As per claim 8, as best understood, it is rejected for reasons as given above for claim 7. The combination of AAPA and Katzy does not specifically show an additional register which could store a value with which to control said lighting device when utilizing a manual override, and wherein said device is

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implemented entirely on a separate circuit board from said microprocessor. Burkman shows the use of manual overrides in a microprocessor lighting system (e.g., col. 10, lines 10, "interpretation of manual override inputs"...). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the system could utilize a separate value storing register to control manual overrides in the system as described above in the rejection of claim 1. Further, it would be obvious to one of ordinary skill in the art at the time the invention was made that the device could be implemented entirely on a separate circuit board from the microprocessor as this would provide a well-known assist in reducing noise or other undesired interaction between the two.

27. As per claim 9, as best understood, it is rejected for reasons as given above for claim 8. Further, it would be obvious to one of ordinary skill in the art at the time the invention was made that the hardware device and microprocessor could be driven by the same clock signal since it is well-known to synchronize microprocessors and associated circuitry with the same clock signal in order to ensure both handle data in a predetermined time relationship.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas M. Shute whose telephone number is (703) 305-5615. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anil Khatri can be reached on (703) 305-0282. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.


November 26, 2003


RAMESH PATEL
PRIMARY EXAMINER 12/1/03
For Anil Khatri